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Thirty-third Annual Meeting

THE AMERICAN ACADEMY OF PERIODONTOLOGY

October 13, 14, and 15, 1949

San Francisco, California

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THE JOURNAL OF PERIODONTOLOGY

JULY, NINETEEN HUNDRED FORTY-NINE

A Rationale for the Treatment of the Intrabony Pocket; One Method of Treatment, Subgingival Curettage

By HENRY M. GOLDMAN, D.M.D., *Boston, Mass.*

THE importance of the recognition of the intrabony pocket as a distinct entity in periodontal therapy has been stressed by Williams (1) and Goldman (2). As yet, however, no rationale for the treatment of this type of periodontal pocket has been offered. The purpose of this report is to present such a rationale and to describe one method of therapy—the subgingival curettage technic. Six cases treated by this method were selected for illustration.

DIAGNOSIS OF THE INTRABONY POCKET

A periodontal pocket may be defined as a space bordered on one side by the tooth and on the other by the crevicular epithelium, the base of the pocket being limited by the epithelial attachment. The chief features are the ulceration of the crevicular epithelium and inflammation of the gingival corium. The pocket is usually filled with debris and calculus. Periodontal pockets may be classified as gingival or intrabony. *The former may be defined as one whose base lies coronal to the bone crest, while the intrabony pocket may be described as one whose base is apical to the bone crest, the pocket extending between the tooth surface and bone. The width of the pocket varies from narrow to broad, depending upon the amount of lateral bone loss that has taken place.*

Detailed examination is essential for the determination of the location and topography of pockets. Gingival inflammation, retraction and other clinical signs correlated to radiographic examination serve as an indication of pocket formation. The broad resorptive process of the alveolar crest is usually associated with a gingival pocket, while a vertical resorption may be the site of an intrabony pocket. However, that radiographs cannot serve as a sole diagnostic procedure for the diagnosis of a pocket has been shown by numerous investigators for the base of the pocket does not necessarily coincide with the location of the alveolar crest. Two methods of examination have been advocated. First, the pocket is measured from a fixed point in millimeters by probe and this finding is correlated with the x-ray and, second, a radiopaque mass is introduced into the pocket prior to the taking of the radiogram giving a recording of the relationship of the bony crest to the base of the pocket. The first method requires the placement of a millimeter rule on the x-ray and measuring off the recorded depth to ascertain the relationship of the depth of the pocket alongside the tooth to the alveolar bone crest. However, standardization of the x-ray

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technic is necessary. The second method gives an exact recording of the relationship of the base of the pocket to the bone crest on the film. This is advantageous as it is a permanent record.

REATTACHMENT

Reattachment may be defined as a regrowth of the attachment apparatus after the treatment of a periodontal pocket. A true reattachment, therefore, necessitates a new growth of cementum and bone with incorporation of periodontal fibers and the establishment of a functional periodontal membrane. It is the writer's belief that this reattachment is not possible in the case of the gingival pocket, in that during healing there is shrinkage of the tissue after repair of the crevicular epithelium and resolution of inflammation of the gingiva. Thus a healthy gingival crevice [sulcus] results. In the case of very deep gingival pockets, a deepened gingival crevice [sulcus] will ensue. However, pocket elimination by means of a true reattachment of the principal fiber apparatus with new formation of cementum and bone is possible in intrabony pockets. The formation of these tissues is dependent upon the organization of a blood clot between the tooth surface and the bone and embraces the same principles that are found in the healing of any wound. Reattachment after therapy of the intrabony pocket can be compared with those occurring after root canal therapy or after apicoectomy (Fig. 1). It has been shown (3,4) that the apical surface of the tooth is covered with cementum after these procedures, that there is a regrowth of an organized periodontal membrane, and that bone deposition on the alveolar side occurs.

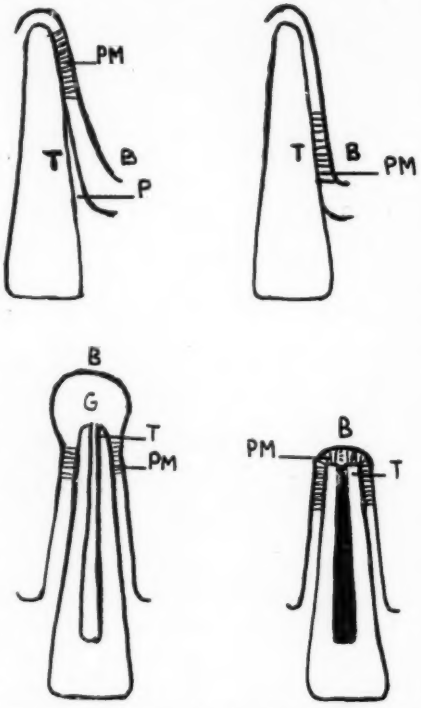


Fig. 1 is a diagram showing the comparison of the regeneration of the attachment apparatus after the treatment of the intrabony pocket and apicoectomy.

T, tooth; PM, periodontal membrane; P, pocket; B, bone; G, granuloma.

RATIONALE

The operator has two choices in the treatment of a pocket in which the base is apical to the bone crest. First, he can attempt to produce reattachment; and, second, he can remove the bone crest to a level of that of the base of the pocket. Otherwise, he must extract the tooth in order to eliminate the pocket, or allow a crevice to remain, the base of which is apical to the alveolar crest. This latter condition, however, will only be temporary for inflammatory conditions will ensue.

The therapy of the intrabony pocket presents a difficult problem to the operator in that not only must he have an understanding of the tissue changes present but also of the topography of the pocket. Then, too, his technical skill must be capable of accomplishing the procedures. The general resistive factors of the patient must be given consideration, and if any systemic factor is present, it must be recognized and brought under control if possible.

The character of the intrabony pocket is a factor in its therapeutic management. A narrow pocket opposing one surface of the tooth lends itself to subgingival curettage while a broad pocket presents a difficult problem. The latter is best treated by means of a flap operation and removal of bone architecturally. The many variables between the two instances cited must be handled according to their characteristics. In many

instances where reattachment is sought, access may be an important handicap. In these cases a flap is performed to obtain accessibility, the technic and principles of subgingival curettage being followed. If reattachment cannot be accomplished and the architectural removal of bone is considered, certain precautions must be taken before a final decision is made. Should too much vital bone support have to be sacrificed about a sound tooth in order to eliminate an intrabony pocket involving a neighboring tooth, it may be better to sacrifice the affected tooth.

SUBGINGIVAL CURETTAGE

Subgingival curettage as a means of therapy for the intrabony pocket, successfully performed, offers the best clinical result in that additional support for the tooth is achieved. In this procedure it is necessary that all the epithelium lining the pocket together with the underlying inflammatory tissue as well as the epithelial attachment be removed. The tooth surface is carefully planed and the gingival tissue is carefully readapted to the tooth, a blood clot being allowed to form in the operated area. If the procedure is successful, the blood clot undergoes organization with production of connective tissue. A layer of cementum forms on the tooth surface while bone deposition takes place on the alveolar side, both surfaces having periodontal fiber insertions. The depth of the crevice will then be situated at a new location on the tooth, lying occlusally to the point of formation of the new tissue.

Subgingival curettage must be performed under anesthesia. The area is cleansed with a mild antiseptic, the adjacent gingival crevices [sulci] or pockets and the intrabony pocket to be treated being thoroughly flushed. The pocket is explored to ascertain the shape and contour and any particular characteristics that may be present. With a curette the crevicular epithelium and the underlying granulation tissue is removed until a solid tissue is encountered (Fig. 2 "C"). At "D" of the same figure the index finger is shown pressing on the soft tissue over the pocket. In this way the curettage can be made against a firm background; when the palatal surface is approached the finger can be placed on this side.

The removal of the epithelial attachment is of great importance. A small curette is placed to the greatest depth of the pocket and forced approximately two to three millimeters beyond, since the average epithelial attachment is approximately this size. This tissue must be carefully removed making sure that the lateral extensions are also included. The operator must be careful that the lateral walls of the pocket are not overlooked. Once the soft tissue side has been finished, the tooth surface is carefully planed with either planes or files. Overlapping strokes are used, first making sure that all calculus deposits are eliminated and secondly, that a layer of the cementum surface is removed. The free gingival margin is then excised; this tends to prevent the apical proliferation of the epithelium and also eliminates the gingival portion of the pocket.

A blood clot is allowed to form and effort should be made to protect it. The gingival tissue should be carefully readapted decreasing the distance between the tooth and soft tissue and in some instances a circumferential suture may be employed. The area is then covered with adhesive tinfoil which is allowed to remain for approximately forty-eight hours. Immobilization of the part should be instituted for several days.

After a few weeks the area may be explored to determine whether closure of the pocket has ensued. Should there be a failure, another attempt can be made. Also, should the pocket be only partly closed, since some proliferation of epithelium had taken place, then the procedure can be repeated to secure complete closure.

CAUSE OF FAILURES

There are many factors which are detrimental to the successful treatment of the intrabony pocket by the subgingival curettage method. The technic is exacting and requires not only excellent technical skill but the knowledge of the tissue changes present. Then, too, because of variables in the epithelial attachment and crevicular epithelium, and hindrances in the protection of the blood clot, and inability to readapt the gingival tissue, the operator cannot be sure that he has accomplished the procedure fully. The elimination of local causative factors is important; traumatic influences, food impaction, and local irritants must be corrected. Also, since the procedure depends upon organization of the blood clot, all systemic

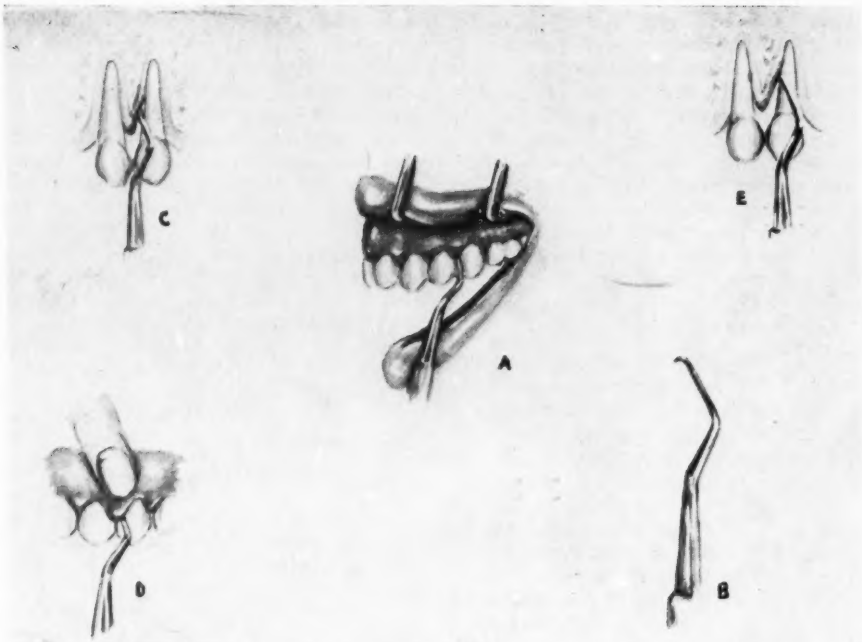
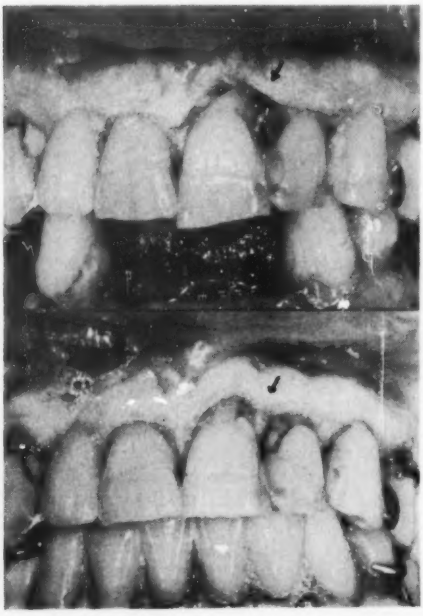


Fig. 2 is a diagram showing curettage in an intrabony pocket. A, the gingiva; B, instrument; C, the curettage of the crevicular epithelium; D, the finger reinforcement; E, curettage of the epithelial attachment.



conditions which influence healing must be favorable or liable to correction.

Of importance, too, is the type and character of the intrabony pocket to be treated. The narrower the pocket, the smaller the area to heal, while the broader the pocket, the greater the chance for the blood clot to wash out or for secondary infection to occur. Should the pocket extend on more than one surface, the problem of accessibility arises. In some instances it cannot be overcome. Thus each case must be carefully evaluated prior to therapy.

The many variables which may prevent successful therapy must be overcome by the technical skill of the operator and his knowledge of the tissue changes present. The more he overcomes these obstacles, the greater percentage of success will he achieve.

Fig. 3—Case I. Before and after photographs of an intrabony pocket, on the distal aspect of the maxillary left central incisor. Note the knife-like edge of the gingival margin (in the after photograph). The tooth was ground for occlusal excursions.

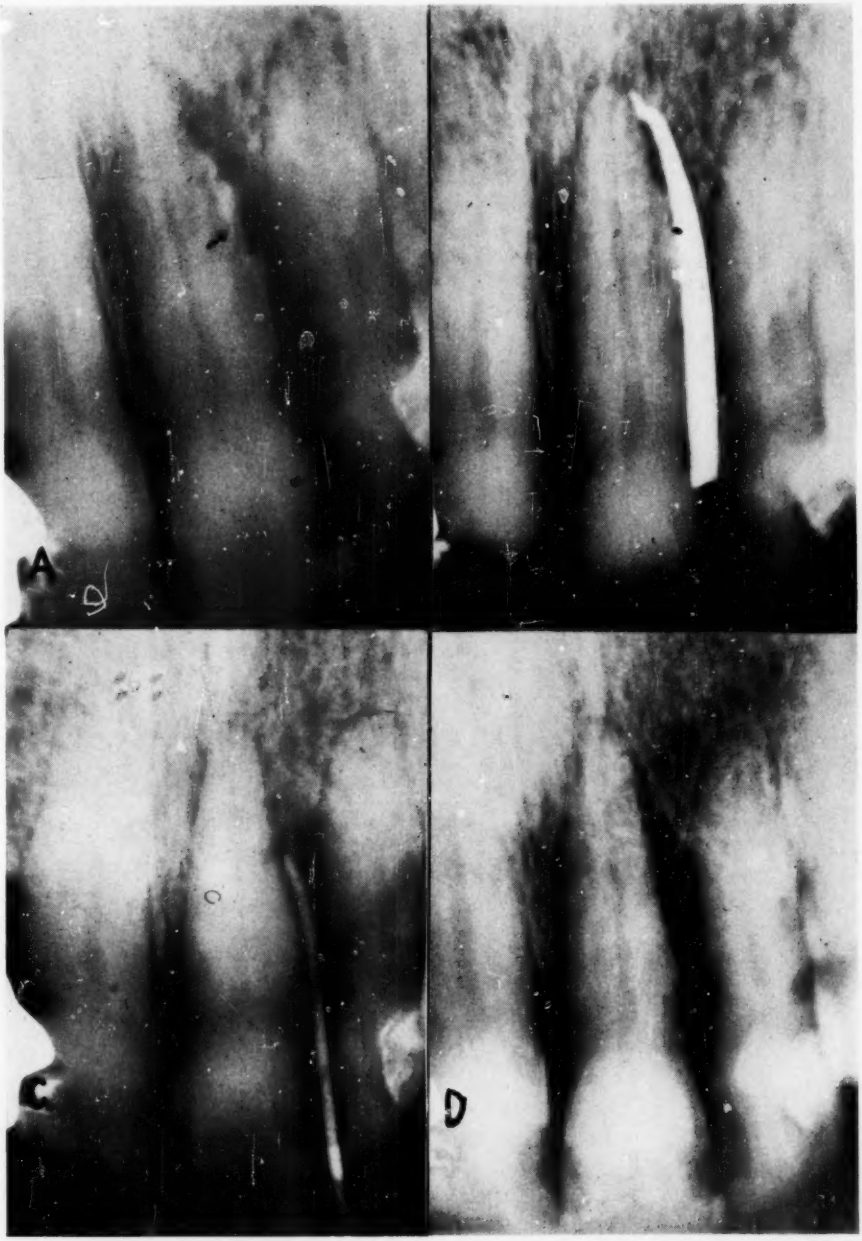


Fig. 4—Case I. X-rays of before and after treatment of an intrabony pocket. X-ray "D" shows new bone formation.

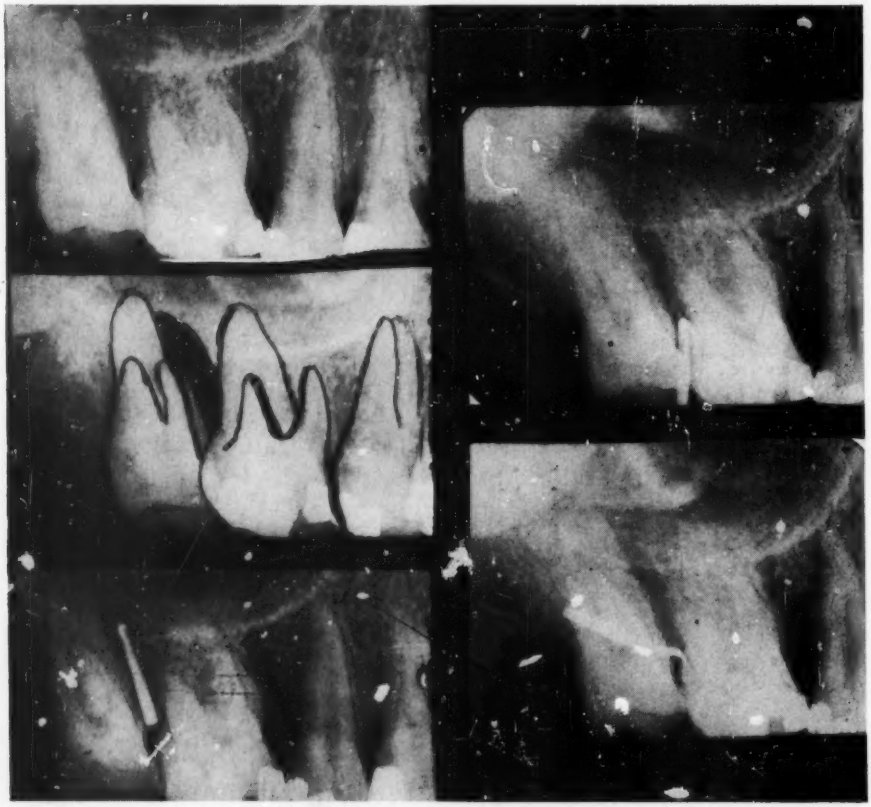


Fig. 5—Case II. X-ray (A) of an intrabony pocket on the mesial aspect of the maxillary third molar. In the after x-rays "D" and "E" the gutta-percha points could not penetrate the previously existing pocket.

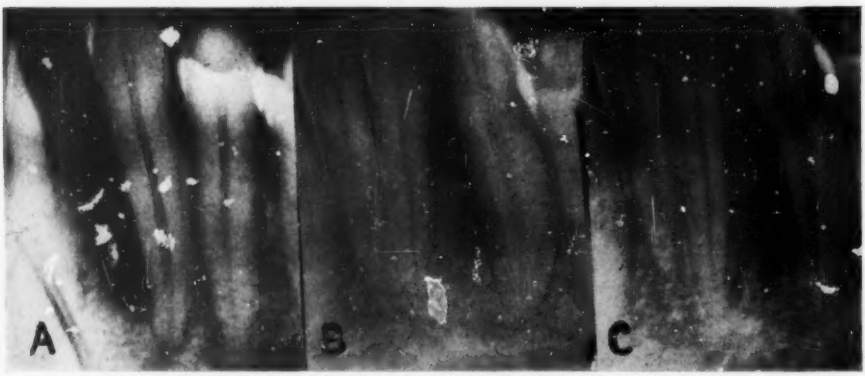


Fig. 6—Case III. X-ray (A) of an intrabony pocket on the mesial aspect of a mandibular left cuspid. In "B" and "C" the bone can be seen filling in the area.

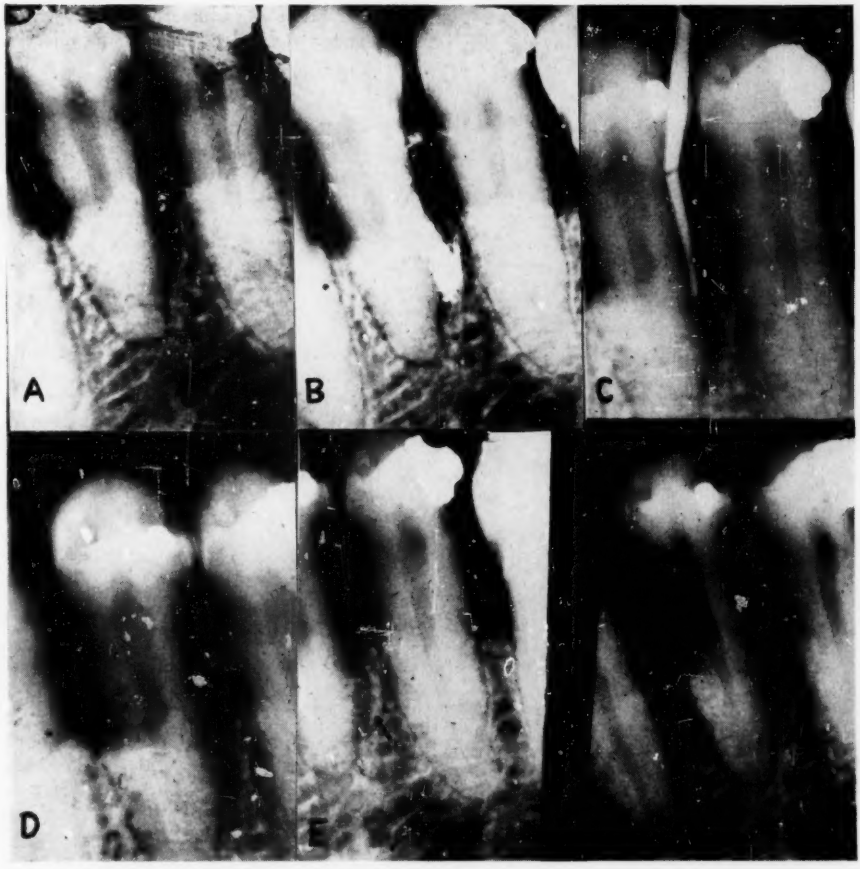


Fig. 7—Case IV. X-ray (A) showing an intrabony pocket on the mandibular left first premolar. In "B" the intrabony pocket is filled with bismuth subnitrate and glycerin paste. Bone repair can be seen in "D", "E" and "F".

ILLUSTRATION OF CASES

Six cases demonstrating the results in the treatment of the intrabony pocket by means of subgingival curettage are presented.

Case I is of a man aged 56 in whom there was a deep intrabony pocket on the distal aspect of the maxillary left central incisor. Clinically the gingival margin was retracted; bleeding and a purulent exudate were noted (Fig. 3). Exploration revealed a great deal of calculus deposition on the root surface which can be seen in the radiogram (Fig. 4 "A"). A gutta-percha point was inserted into the pocket and a radiograph taken. After subgingival curettage the gingival margin adhered to the tooth and would not allow a probe to be inserted between it and the tooth (Fig. 3). New bone formation is noted in Fig. 4 at "D", the radiograph being made six months after operation.

Case II is that of a man aged 22 for whom subgingival curettage was performed for the treatment of an intrabony pocket on the mesial aspect of a maxillary third molar. Fig. 5 at "A" shows the initial radiograph taken. The second molar had been removed for orthodontic reasons, the third molar having assumed the position of a second molar. The radiograph at "C" shows the gutta-percha point in place. X-rays of the case

Fig. 8—Case V. Before and after x-rays of two intrabony pockets. Note the regeneration of the lamina dura.

after six months demonstrate that gutta-percha points placed from both the buccal and palatal could not penetrate beyond the gingival crevice [sulcus].

Case III illustrates clearly the repair of bone after the treatment of an intrabony pocket on the mesial aspect of a mandibular left cuspid of a woman, aged 42. Figure 6 at "C" shows the regeneration of a lamina dura. Note the architectural arrangement of the supporting bone; this is indicative of new bone formation.

Case IV is one in which an intrabony pocket was found on the distal aspect of a mandibular left first premolar in a man aged 53. A radiopaque mass consisting of a putty-like consistency of bismuth subnitrate and glycerin was inserted into the pocket prior to the taking of the radiograph. (Fig. 7, "B"). The repair of bone can be seen at "F". The time elapsed between operation and repair was four months.

Case V is that of a man, aged 47. Examination revealed intrabony pockets on the mesial aspect of the first and second mandibular molars. While the former was considered inoperable, subgingival curettage was performed for both. Six months later the regeneration of lamina dura in both instances is evident (Fig. 8).

Case VI is that of a woman, aged 37, who complained of loosening of a maxillary left lateral incisor. Examination revealed a deep pocket on the distal and palatal aspect with retraction of the gingival margin. Probing caused much bleeding and a purulent exudate was noted. A radiograph showed marked bone loss and a gutta-percha point inserted into the pocket showed that the bottom of the pocket was apical to the bone crest. (Fig. 9). Subgingival curettage was performed under local anesthesia. After healing, the tooth became firm and probing would not allow entrance between the gingiva and the tooth. Part "F" in Fig. 9 shows the deposition of bone after six months.

(See illustration next page)

BIBLIOGRAPHY

1. Williams, C. H. M.: Rationalization of periodontal pocket therapy. *J. Periodont.* 14:67, 1943.
2. Goldman, H. M.: Subgingival Curettage, a rationale. *J. Periodont.* 19:54, 1948.
3. Hill, T. J.: Regeneration of periodontal membrane after root curettement. *D. Cosmos*, 73:799, 1931.
4. Coolidge, E. D.: Root Resection as a cure for chronic periapical infection: histologic report of a case showing complete repair. *J. Am. Dent. Assoc.* 17:239, 1930.
5. Gottlieb, B.: The new concept of periodontoclasia. *J. Periodont.* 17:7, 1946.
6. Bell, D. G.: A case of reattachment. *J. Periodont.* 8:30, 1937.

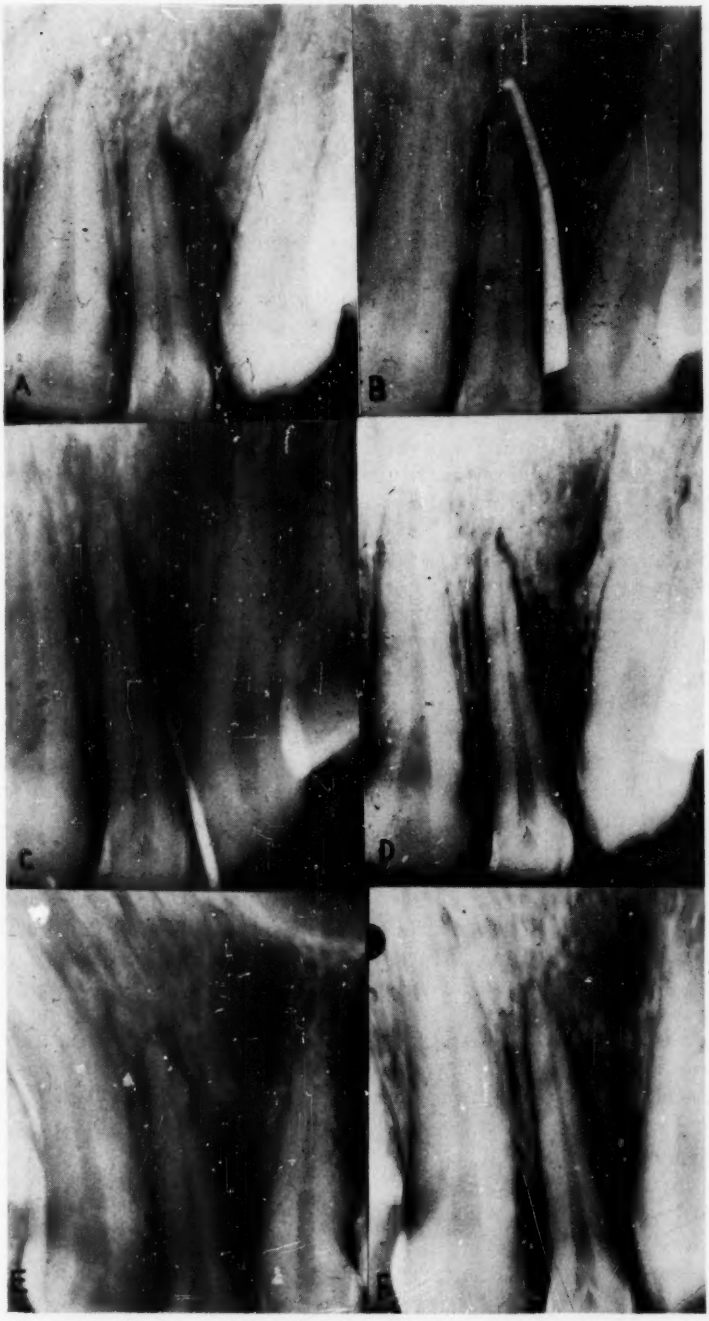


Fig. 9—Case VI. X-ray (A) of an intrabony pocket on the distal and palatal aspects of a maxillary left lateral incisor. In "B" the gutta-percha point can be seen in the pocket. The overlapping at the apex is due to the fact that the gutta-percha point went palatally. New bone formation is evident in X-rays "D", "E" and "F".

Nutrition and Dental Health

The Importance of High-Quality Protein

By DOROTHEA F. RADUSCH, D.D.S., B.A., M.S., *Minneapolis, Minnesota*

AS THE SCIENCE of nutrition develops, emphasis on the different nutrients changes. In the early period, the prime interest was the caloric or energy value of food. In many areas of the world this must still be the first consideration. Fortunately in the United States, the question now is generally not how much, but how good is the nutrient content of the food.

In studying energy values, foods were differentiated into the broad groups of protein, carbohydrate, and fat. It was noted that responses of the experimental subjects varied according to different food sources. Thus accessory food factors were discovered. When disease conditions which had been long known, such as scurvy and beri-beri responded dramatically to treatment with vitamins the attention of both scientists and lay persons was aroused. Thus the vitamin era was popularized. Continued research demonstrated that the vitamins were complex structures; that the first simple classifications could be sub-divided many times. There was more and more recognition of the interrelationships of the many nutrient factors. Experiments on laboratory animals and man indicated that vitamins have an essential role in protein synthesis, although the action needs elucidation.

Research progressed on the components of protein, making it possible to feed individual amino acids to experimental subjects, and thus to demonstrate more clearly why some proteins were more nutritious than others. Because the newest material is always the most popular, protein and amino acids are now of foremost interest in nutrition.

EFFECTS OF LOW CALORIE OR PROTEIN DEFICIENT DIETS

Fundamentally, the caloric value of the daily food is of prime importance in protein metabolism. If the calories supplied by carbohydrate and fat are insufficient, the protein in the diet will be used first to supply energy, instead of being used for tissue maintenance and synthesis. In fact, if the total energy intake is too low, tissue protein will be drawn upon to supply necessary energy. This withdrawal will result in atrophy of organs associated with varied pathologic effects. These changes are similar to those resulting from dietary protein deficiency. According to Cannon (1948) the signs may be muscular weakness, weight-loss, anemia, leukopenia, hypoproteinemia, impaired lactation, decreased capacity to form antibodies, decreased resistance to infection, slow wound healing, lymphoid depletion and a reduced ability to fabricate certain hormones and enzyme systems.

In marked weight loss there is a tissue loss with a corresponding loss of blood and tissue protein, thus reducing the factor of safety in relation to the body's ability to carry on metabolic functions. Debilitation occurs also because of the

decreased capacity to form specific antibodies when there is severe protein deficiency and associated depletion of bodily protein reserves. Decreased resistance to infection may occur in the severely under-nourished who react ineffectively to infectious agents which ordinarily would be well-borne. Antibodies are protein, and there is no other mode of synthesis except from dietary repletion with high quality protein.

Enzymes are either proteins or are coupled with protein. Thus protein deficiency hampers optimal enzyme action. In the study of rats it has been observed that there is marked diminution in peptic activity in protein-depleted rats associated with a reduction in the volume of gastric juice secreted as well as in total acidity. Other experiments suggest a continuing demand of enzyme systems for essential amino acids. Fortunately the abnormalities are usually reversible when protein containing a sufficient amount of all the essential amino acids is fed.

INDISPENSABLE AMINO ACIDS

The twenty-two amino acid components of protein have been made available so that studies of purified diets have been possible in man and lower animals in which but a single amino acid at a time was omitted. These experiments offer clear-cut evidence that eight amino acids are indispensable. If any one of these is missing, the subject will develop a negative nitrogen balance. If the missing amino acid is fed, nitrogen equilibrium is reëstablished. The response is the same, regardless of which one of the eight is lacking. No specific lesion has been clearly demonstrated due to lack of any one amino acid, in the short time studies now reported, with a possible exception of tryptophane. If deficiency of any one of the essential amino acids is continued, there is not only a negative nitrogen balance, but in addition, symptoms of weight-loss, loss of appetite, loss or impairment of the capacity to fabricate serum protein and hemoglobin occur. These all clear promptly in man as well as in the laboratory animal if the missing amino acid is supplied.

ALL OR NONE PRINCIPLE IN PROTEIN SYNTHESIS

The indispensable amino acids, like the vitamins, must be supplied from an outside source, only in more sizeable amounts. Unlike vitamins, however, they cannot be stored as reserves, even for short periods. They must all be available simultaneously for tissue synthesis and maintenance. Rose (1946) has said that if a tissue is to be synthesized at all, every component must be available or be capable of being manufactured by the cells, otherwise synthesis will not occur.

This inability to store reserves of the essential amino acids has been clearly demonstrated by laboratory experiments in which rats were fed rations made up of one-half of the essential amino acids alternately hourly. The interval of one or two hours made the amino acids of the first group unavailable for use with those given later. If both rations were given together, responses were normal. From this and other experiments it is definite that deficiency of any one of the essential amino acids constitutes a limiting factor on the nutritive potentiality of a protein.

When incomplete proteins, which do not contain all the essential amino acids are metabolized, they supply the animal body with some of the essential amino acids. These are neither used for tissue synthesis nor stored to be used later whenever the missing essential amino acids are supplied from other food sources. Instead they are oxidized and the nitrogen portion is excreted. Dr. Paul Cannon summarized these findings of experimental work by saying "The synthesizing mechanisms operate on an all or none principle and are perfectionistic to the extent that if they cannot build a complete protein they will not build at all."

SIGNIFICANCE OF DAILY DISTRIBUTION OF HIGH QUALITY PROTEIN INTAKES

All present evidence suggests that it may not be sufficient to have all the essential nutrients daily, but that in addition, they must be distributed properly. To investigate this problem further, human subjects were studied in two different periods when the food intake was identical, but the distribution of the protein in the daily meals was different (Leverton, 1949). Fifteen college girls were given a diet which furnished the recommended allowances of protein, mineral and vitamins. For the first 18 days the breakfast menu was the popular one of fruit, bread products (made without milk), and

coffee. All the high-quality protein was served at the noon and evening meals. Some of the protein was supplied by one glass of milk at the noon meal and two glasses at the evening meal. The menu for the second 18 days was exactly the same, except that one glass of milk was taken from the evening meal and added to the breakfast. The daily protein intake remained constant throughout the 36 days. During the last nine days of each of the two periods, the absorption and excretion of nitrogen was measured quantitatively for each girl and the results of the two periods compared. The results suggest that even though the daily protein intake was the same there was a tendency for the girls to use more of the nitrogen available from the protein during the period when milk was included in the breakfast than when there was no milk in that meal. From the trend of present experimental findings and until more is known about the body's needs, it would probably be safer for everyone to include some high-quality protein in every meal.

EFFECTIVE TISSUE SYNTHESIS

For effective tissue synthesis, protein, calories, and vitamins are mutually indispensable. The amino acid limitations of a diet may impair its nutritive potentialities, regardless of its caloric value. Since the nutritive quality of a protein depends mainly upon its amino acid composition, meat, milk, fish, and eggs which contain all the essential amino acids generously and simultaneously should be used liberally. Yet the story does not end with amino composition alone. Hess (1948) studied two samples containing identical amounts of all known essential amino acids and showed that they varied in nutritive value. He concluded that "some unknown factor or factors play a role in the nutritive value of protein". Others (Woolley, and Rose, *See* Cannon 1948, p. 20) have demonstrated the role of a polypeptide growth factor "streptogenin" in facilitating amino acid utilization.

RECOMMENDATIONS

Protein metabolism and protein needs are a complex subject. Additional studies will establish more exact standards for intake of proteins "which are still first in the regulation of vital processes" (Lewis, 1942). For the present, it is good nutrition practice to follow the recommended allowances for the various nutrients in planning the daily well-balanced three-meal schedule.

REFERENCES

Cannon, Paul R.: *Some Pathologic Consequences of Protein and Amino Acid Deficiencies* (Charles C. Thomas, Springfield, Ill., 1948)

Hess, W. C., and Associates: Abst.: *Nutrition Abstracts and Rev.* 18:363, Oct. 1948.

Leverton, Ruth M.: "Breakfast with High Quality Protein," *Nutrition News;* 12:13, April, 1949.

McLester, J. S.: "Protein Comes Into Its Own." *J.A.M.A.* 139:897, April, 1949.

Rose, W. C.: *The Nutritive Role of the Amino Acids,* (The Nutrition Foundation, New York City, 1946).

832 LaSalle Bldg.

Have you made your reservations in San Francisco for the next Annual Meeting of the American Academy of Periodontology, October 13, 14, 15, 1949

Recent Development In Endocrinology and Endocrine Regulation of Growth*

WILLARD O. THOMPSON, M.D., *University of Illinois*

**Abstract* by Willa Yeretsky, D.D.S., of Two Seminar Lectures, May 2, 1949

The pituitary gland which may be said to be the governing gland of the body, is divided into three lobes, the posterior lobe, the intermediate lobe, and the anterior lobe.

Normally, the posterior lobe secretes a pressor factor and an oxytocic material which are very useful in surgery and in obstetrics.

Hypofunction of the posterior lobe causes diabetes insipidus.

The intermediate lobe has not been shown to secrete any material of therapeutic importance to man.

The anterior body of the pituitary produces many hormones. It is thought that there may be as many as twelve different ones. The hormones produced by the anterior body are essential to the development and growth of the body, the soft tissues as well as the bony skeleton. The anterior body hormones are also essential to the development and activity of the thyroid, adrenal cortex, and gonads.

Gigantism occurs from over-production of the pituitary growth factor before epiphyseal closure, acromegaly develops when the overactivity is present after the union precludes further gain in length of long bones.

Since the growth hormone is produced from the eosinophilic cells of the anterior lobe, it is evident that gigantism or acromegaly may be associated with an eosinophilic adenoma of the anterior lobe, or with hyperplasia of the eosinophilic cells without adenoma.

The basophilic cells of the anterior body produce the gonadotropic hormones. There are two separable substances known as the follicle stimulating and the luteinizing hormones. In the female the ovarian cycle depends on the proper sequence of action of these two hormones. In the male, the follicle stimulating material produced by the anterior lobe influences the function of the seminiferous tubules while the luteinizing material stimulates the interstitial cells of the testis to produce male sex hormone.

There are three types of gonadotropin available: pituitary, from the pituitary gland itself, equine gonadotropin and chorionic gonadotropin.

Chorionic gonadotropin and the male sex hormone itself are the most potent growth factors available at the present time, with the exception of the thyroid hormone in patients with cretinism.

During adolescence, glandular disturbances resulting from both hypopituitarism and hyperpituitarism occur.

In rare instances, such as a chromophobe adenoma or suprasellar cyst, all functions of the anterior lobe may be lost with a resulting retardation of growth, failure of sexual development and deficiency of adrenal cortical function, which produce a lowering of blood pressure and reduction in concentration of sodium in body fluids. Patients with complete pituitary deficiency have a low resistance to surgical procedures.

Anorexia nervosa is a disease which may be confused with marked hypopituitarism. It is more common in the female than the male, and may be psychogenic in nature. It generally involves a desire of young women to avoid becoming obese. They select their own diets and gradually a state of malnutrition sets in.

As a result of malnutrition, various glandular deficiencies develop. There is then failure of the anterior lobe of the pituitary and, secondary to this, hypothyroidism, hypogonadism, and hypoadrenalism. The basal metabolic rate may drop to —40 to —45 per cent. The blood pressure drops because of the deficiency of the adrenal cortex. The glandular deficiencies produced by malnutrition may persist for several years after body weight returns to normal following a course of adequate nourishment.

The anterior body of the pituitary produces a thyrotropic hormone which appears in conjunction with a diabetogenic hormone. The following effects of thyrotropic hormone have been observed in man: 1. Increase in basal metabolism in all cases except those

with complete myxedema; 2. production of thyrotoxicosis in patient with nontoxic goiter; 3. production of a syndrome resembling exophthalmic goiter in patients with a normal or slightly subnormal B. M. R.; and 4. increase in severity of toxic goiter.

The thyroid apparently is only one link in a chain of events leading to the symptom complex known as "toxic goiter". Over stimulation of pituitary appears to be an important factor. Thus, irradiation of pituitary has been of some value in treatment of toxic goiter, but is a dangerous procedure, because of possible interference with other functions of the gland.

Direct treatment of the thyroid gland itself, while probably not reaching the underlying cause have so far proved the most effective means. The methods consist of thyroidectomy, anti-thyroid drugs and radioactive iodine. The anti-thyroid drugs most commonly used are thiouracil and propylthiouracil, the latter being the less toxic. These drugs given over a sufficiently long period may be adequate to control or cure the disease. Where they do not suffice for that purpose, they are used to prepare the patient for operation.

Hypothyroidism may develop during adolescence or may be the result of deficiency occurring at an early age. Many of the milder forms in adolescence are secondary to hypopituitarism. A normal concentration of thyroid hormone is essential for all glandular changes occurring during adolescence. In early hypothyroidism the development of the brain is affected more than the skeleton. The brain doubles in size during the first year of life and absence of the thyroid hormone for only a few months results in permanent damage (cretinism.).

There have recently been strikingly interesting results from the use of sex hormones in the treatment of carcinoma of the breast and of the prostate.

In the patient with inoperable cancer of the breast testosterone has been used effectively to ameliorate the symptoms. It does not have much effect on the lesion in the breast but seems to be effective in bone metastases. It causes some calcification of the metastases, causes pain to disappear and improves nutritional status of the patient. Estrogenic therapy causes diminution in local lesion in breast and in soft tissue metastases after age of menopause.

In cancer of the prostate, functional castration with estrogens results in striking improvement. This method is not to be desired over orchiectomy, but where surgery is not possible, the female hormone is very effective.

[Other reports of the Ninth Academy Seminar arrived too late for publication in this issue of the Journal—Ed.]

Have you made your reservations
in San Francisco
for the next Annual Meeting
of the
American Academy of Periodontology
October 13, 14, 15—1949

WELCOME TO SAN FRANCISCO

TO UNDERSTAND the character of San Francisco it is important to remember that this is a seaport city. Ships and the sea are a part of its daily life. Although San Francisco is today a modern industrial metropolis, it is still close to its origin and the aura of the past lends its glamor. Spanish people were the founders of the city and their imprint remains on it to the present day. The Presidio and Mission Dolores were founded by the Spanish friars and soldiers in 1776 and dedicated to St. Francis of Assisi. Originally a colony of Spain, then part of the Mexican Republic, San Francisco passed to American rule with the raising of the United States Flag by Captain John B. Montgomery of the U.S.S. Portsmouth. The real impetus of San Francisco's growth came, of course, in the year immediately following discovery of gold in 1848. It is a city built on hills more numerous than Rome.

San Francisco has much to offer the visitor in things to see and pleasures to be enjoyed, such as the bay and the two world-famous bridges . . . The Golden Gate and the Ocean Beach—Coit Tower and Mission Dolores—the hills and cable cars—the Ferry Building—Fishermen's Wharf and the Cliff House—Italian flower vendors and Bohemian cafes . . . Market Street . . . Twin Peaks . . . the opera, symphony, and ballet—Chinatown and the International Settlement—night clubs and theaters—smart shops, exotic foods and fine restaurants . . . parks, museums and art galleries. This is the City by the Golden Gate.

Once again, we have the opportunity of being host to the American Academy of Periodontology. The latchstring is out; we are waiting for you and it is our hope that every member of the Academy will come to the meeting in California.

The Committee on Local Arrangements,
Dickson G. Bell, *Chairman*

PROGRAM

Thirty-third Annual Meeting

San Francisco—October 13-15

THURSDAY, OCTOBER 13, 1949

8:30-9:00 A.M.—Registration

9:30—First Session of the Thirty-third Annual Meeting

Edward L. Ball, Sr., President

Reports of Officers and Committees:

Secretary ..... Clarke E. Chamberlain
Treasurer ..... C. Wesley Marriott
Committee on Program ..... Carlos H. Schott
Committee on Clinics ..... Howard A. Hartman
Committee on General Arrangements ..... Dickson G. Bell
Committee on Scientific Investigation ..... Hermann Becks
Committee on Nomenclature
Committee on Credentials

Special Committee Reports:

10:30—President's Address, Edward L. Ball, Sr.

11:00—"The Treatment of Periodontal Disease by a refined Gingivectomy Technique"

Olin Kirkland, Montgomery, Ala.

2:00 P.M.—"The Relation of Roentgenographic, Technical, and Photographic Factor Changes to Periodontic Interpretation"

Gordon M. Fitzgerald, San Francisco, Calif.

3:00—"A Case of Hemorrhagic Stomatitis"

Donald H. Miller, San Francisco, Calif.

4:00—"Bio-Mechanics of Periodontal Disease"
(Illustrated with lantern slides and models)
Ernest R. Granger, Mount Vernon, N. Y.

5:00—"The Problem of Function in Periodontal Treatment"
William Branstad, Saint Paul, Minn.

5:20—Clinic
Ernest R. Granger and William Branstad

FRIDAY, OCTOBER 14, 1949

8:00 A.M.—Past Presidents' Breakfast

9:00—Report of Past Presidents' Meeting, Chairman
Committee on Scientific Investigation
Hermann Becks, Chairman

9:15—"The Relationship of Nutritional Disturbances to Periodontal Lesions"
Michael Walsh

10:15—"Changes in Mucuous Membranes of the Respiratory Tract During Inflammatory Diseases and Malignancies"
S. Farber

11:15—"The Vascular-cellular Dynamics of Inflammation"
Warren Bostick

12:30 P.M.—Luncheon—Academy Round Table
Co-Chairmen—Justin D. Towner, Memphis, Tenn.; Monte Bettman, Portland, Oregon

3:00—Committee on Scientific Investigation (continued)
Hermann Becks, Chairman

3:00—"The Importance and Significance of Laboratory Findings of Patients with Periodontal Lesions"
Jesse Carr

4:00—"The Role of Nuclear Physics in Medicine and Dentistry and the use of Radioactive Tracers in the Study of Bones and Teeth"
D. Harold Copp

7:30—Annual Banquet

SATURDAY, OCTOBER 15, 1949

9:15 A.M.—Physiological Occlusion and Occlusal Trauma
Hunter S. Allen, Birmingham, Ala.

9:35—Sensitive Teeth
S. R. Parks, Dallas, Texas

9:55—Are Rampant Dental Caries and Periodontal Disease Incompatible?
Robert G. Kesel, Chicago, Ill.

10:15—The Rationale of Pocket Elimination in the Treatment of Periodontoclasia
Raoul H. Blanquie, San Francisco, Calif.

10:35—A Yearly Preventive Plan for a Periodontia Practice
A. J. Peetz, Madison, Wis.

11:00—Status of Periodontia as a Specialty
Arthur H. Merritt, New York City

11:30—Business Meeting and Election of Officers

2:00 P.M.—Clinics
Howard A. Hartman, Chairman
"Oral Hygiene—Tooth Brushing and Massage"
Frederick A. Bricker, Los Angeles, Calif.
"Clinical Photography"
Donald H. Miller, San Francisco, Calif.
"When is so-called Trauma, Trauma?"
Hunter S. Allen, Birmingham, Ala.
"Gingivectomy"
James P. Hollers, San Antonio, Texas
"Electro Surgery"
Edward L. Ball, Jr., Cincinnati, Ohio
"Gingivectomy—What Does it Do?"
Irving Glickman, E. Fisher, Tufts College of Dentistry, Boston, Mass.
Group Presentation
Periodontia Faculty
University of California
San Francisco, Calif.
Group Presentation
Dental Department
College of Physicians and Surgeons
San Francisco, Calif.

4:00—Informal Tea for Members and Guests
President and Mrs. Edward L. Ball, Sr., Host and Hostess

Editorial

Editor Resigns

TO RESIGN from a position of trust and responsibility requires the courage of one's conviction that such action is unavoidable and necessary to the best interest of all concerned. The writer was faced recently with a decision like the above and without warning. For incontrovertible reasons a decision was reached to resign as Editor of this Journal after having served in that capacity for twenty years, since its beginning.

To carry on for so long a period has required the support of others, chiefly the Associate Editors—Drs. Harold J. Leonard, Arthur H. Merritt, and Celia Rich. Dr. Leonard supplied much material for the earliest issues, and later developed the "In Our Opinion" department of the Journal. Dr. Merritt's encouragement, wise counsel and inspiration were always available. Dr. Merritt prepared many articles of historical interest published in the Journal and assumed responsibility for the Journal Endowment Fund when it was first established. Dr. Rich has supplied abstracts and book reviews for many years.

The Managing Editor, Dr. E. Romle Romine, secured hundreds of subscribers and renewals and gave much of his personal effort and time to such Journal interests.

The articles regularly contributed in recent years by Dr. Dorothea F. Radusch on "Nutrition and Dental Health" have been of value and interest to many of our readers and much appreciated by the Editor.

The coöperation of Academy members in getting new subscribers, in contributing to the Journal Endowment Fund, and in supporting the ideals of professional journalism was invaluable. Letters of encouragement were written to the Editor by various members which helped materially.

It is hoped that the new Editor will receive the same encouragement and support from the officers and members that this writer has received. It will be well deserved for the appointment of Maynard K. Hine as Editor of this Journal was a wise choice. His experience in educational fields and in dental journalism, his fine appreciation of professional ideals and his interest in periodontia fit him well to serve as Editor of the Journal of Periodontology. This Journal is the chief asset of the American Academy of Periodontology—it is the symbol of its ideals.

—G.R.S.

ABSTRACTS OF CURRENT PERIODONTAL LITERATURE*

(New Series)

21—Hall, A. Fletcher: **Recurrent ulcers of the mouth.** *J.A.M.A.* **137(11)**:1004. July 10, 1948.

Regarding recurrent ulcers of the mouth, the most probable diagnosis has been disregarded in answering query in the February 7th *J.A.M.A.* Aphthous ulcers are now generally considered to be a variant of herpes simplex of the recurrent type and repeated vaccinations as for smallpox will frequently stop or ameliorate attacks. Methods of administering are described.

—*C.R.*

22—Rowe, Albert H.: **Canker sores.** *J.A.M.A.* **128(17)**:1288. Dec. 25, 1948.

Regarding query, (June 12), inadequate significance was given to food allergies. Cutaneous tests rarely implicate any or all of allergenic foods involved. Trial diets must be followed and continued longer than former periods of relief; after this, foods should be added and tested one by one. Canker sores appear in debilitated persons but probably along with food allergies. Exhaustion and drowsiness were probably part of the syndrome of allergic toxemia. Canker sores can usually be controlled with trial diets, but also to be considered are bacterial allergies from oral and pharyngeal foci, an occasional drug allergy and, more rarely, electrolytic reaction between gold and amalgam fillings.

—*C.R.*

23—Arnold, Harold L., Jr.: **Herpetic Stomatitis: Communication to the Editor.** *J.A.M.A.* **138(3)**:256. Sept. 18, 1948.

Herpetic stomatitis is not necessarily accompanied by external lesions as stated in *J.A.M.A.* of Dec. 13, 1947, page 1040. Such association is exceptional. Herpetic stomatitis is by far the most frequent cause of oral ulcers recurring over a period of many years. It is almost always relieved and sometimes actually cured by repeated vaccination against small-pox, or perhaps better, bi-weekly intradermal injections of smallpox vaccine in saline suspension. For detailed technic see *Proceedings of the Staff Meetings of the Clinic*, Honolulu, for August, 1944.

—*C.R.*

24—Braund, R. R., M.D.: **Role of dentist in mouth cancer.** *J. Tenn. State Dental Assn.* **28(4)**:14-17. October, 1948.

It is pointed out that in mouth cancer, the dentist in more than 30 per cent of the cases, sees patient before physician is consulted. Thus, it is often the dentist's responsibility, also his opportunity to save lives by an early diagnosis. Author describes symptoms of mouth cancer and discusses its diagnosis as differentiated from syphilis, inflammation, tuberculosis, leukoplakia and other symptoms. It is unfortunate that many think mouth cancer incurable and fail to seek timely professional advice. The subject should be given greater emphasis in dental schools and in dental society meetings.

—*C.R.*

25—Query: **Leukoplakia.** *J.A.M.A.* **137 (16)**:1449. August 14, 1948.

How should leukoplakia of lower lip be treated? Answer: There is no specific cure. L. of lower lip is usually induced by pipe smoking. Known common irritants should be removed or corrected i.e. poor dental hygiene, tooth irregularities, calculus and caries. Strong drink and irritating foods, either too hot or too highly seasoned aggravate condition. Smoking is most usual factor in inducing and continuing L. of mouth and its complete interdiction must be insisted upon even though physician's aid and sympathy may have to be enlisted. Simple mouth washes are useful. Vitamin A sometimes helps., Estrogenic substances may be tried but with caution. Caustics are contraindicated. "Cancer can supervene from their use", and if destructive therapy is necessary, surgery should be employed. Syphilis is sufficiently frequent to warrant consideration in etiology and therapy. In the absence of induration and tendency to bleed conservative methods are usually sufficient; but where lesion is thickened and fissured, squamous cell cancer may result and here radical measures are indicated, even radiation therapy is sometimes used but this should be resorted to only when cancerous degeneration has occurred.

—*C.R.*

*Abstracts supplied by Drs. Celia Rich and Henry M. Goldman

26—Query: *J.A.M.A.* **138(2):**168. Sept. 11, 1948.

Query is in regard to effects of adhesive powders used to retain artificial dentures. Editor replies that such substances do not produce leukoplakia or other harmful effects although they should be unnecessary if dentures are properly constructed. Failure to cleanse restorations regularly could produce inflammatory changes like those caused by accumulations of food, debris, etc.

—*C.R.*

27—Query: **Calcium deposits.** *J.A.M.A.* **138(4):**332. Sept. 25, 1948.

Query concerns patient of 17 with extremely rapid dental calculus formation. Answer: Blood and urinalyses should be made to rule out these systemic possibilities. Diet should be rich in alkaline ash and fibrous foods; and in naturally detergent agents such as fresh fruits. Frequent small meals are advised rather than fewer large ones. Stiff natural-bristle toothbrush can remove organic matrix of calculus if used while material is still soft. Warm normal saline mouth wash is recommended as adjunct. "Thorough cleansing will prevent accumulation of calculus."

—*C.R.*

28—Query: **Gingivitis accompanying pernicious anemia.** *J.A.M.A.* **138(7):**542. October 16, 1948.

In reply to the question as to whether the gingivitis in a case of pernicious anemia is contributory or a result of the blood condition, the Editor replies that the gingivitis is probably unrelated to the anemia in the present case. —*C.R.*

29—Query: **Bleeding gums.** *J.A.M.A.* **138 (12):**934. Nov. 20, 1948.

A married woman, 36, in good health has had slight bleeding of gums for years in spite a good mouth care and well-balanced diet. Basal metabolism and blood chemistry normal. There is some malocclusion. Deep pockets have now formed around all her teeth and periodontists advise extraction of many or all of them. Nine year old daughter has recently shown evidence of bleeding gums although diet and oral hygiene have been carefully looked to. Is such a tendency inherited? Answer: Brief history given precludes specific answer. Causes of periodontal lesions are classified as follows: (1) disfunctional, (2) irritative and (3) systemic, or idiopathic, and combinations of any or all of these. Successful therapy depends on correct diagnosis. Failure to recognize some one etiologic factor may retard or forestall satisfactory prognosis. Heredity might obtain but should be considered only after all the usual, common factors have been ruled out. The upper respiratory passages should be examined since obstruction here leads to mouth breathing, a not uncommon cause of inflammation of the anterior gingivae; or because of the child's age in this case bleeding may be associated with shedding and eruption of teeth. —*C.R.*

30—Query: **Burning Tongue,** *J.A.M.A.* **139(5):**343. January 29, 1949.

A highly nervous woman of 37 has severe and progressive sensation of burning starting with lower lip, later tip of tongue and now involving entire tongue and extending down pharynx into esophagus. There is no visible inflammation. Vitamin and sedation medication have been used and smoking discontinued without benefit. Good general health examination has revealed no cause.

Suggestions for treatment include the following: Continued ban on smoking, the use of bland foods and drinks and a mild mouth wash. New dental work of differing electrical potentials might be a contributing factor. Large doses of nicotinamide should be continued and neostigmine bromide given to increase the secretions. If patient is a cancer-phobe, as often happens, and if conditions appear to be functional, a neuropsychiatrist should be consulted. —*C.R.*

31—**Toothbrushes.** *J.A.M.A.* **139(2):**102. January 8, 1949

In section "Current Comment", Editor discusses recent survey "A Study of Toothbrushes in Use in American Homes", (*J.A.D.A.*, 37: 346-349, September 1948) and concludes that "Apparently there ought to be some sort of routine inspection and rehabilitation of toothbrushes like that given to motor cars, oil heaters, and other domestic devices. The care of a brush of any kind should include thorough cleansing and drying after use, and especially when debris accumulates." —*C.R.*

32—Query: **Actinomycosis.** *J.A.M.A.* **139 (3):**194. January 15, 1949.

Query concerns case of man who de-

veloped an "enlargement of the jaw" and other symptoms supposedly indicative of actinomycosis, as a result of rolling about in his mouth a pebble picked up in Colorado. Various types of therapy have proved ineffective. Answer suggests that diagnosis be confirmed by demonstrating specific organisms in the discharge. In case of actinomycosis, best treatment is 1,000,000 units of penicillin daily for three weeks, possibly repeated three months later. —*C.R.*

33—Query: **Patch testing on mucous membrane.** *J.A.M.A.* **139(16):**1124. April 16, 1949.

Patch testing on the mucous membrane is considered when a stomatitis is suspected of being caused by direct contact with an allergenic substance. The allergen is fastened to a small rubber suction cup held in place with collodion or by some similar means. It is left in position on the mucosa for 20 or 30 minutes; and the contacted surface is examined for reactions several hours to a day or two later. The following references are given for exact techniques of testing, *J. Investig. and Dermat.* 8: 59, 1947; and *Arch. Dermat and Syphl.* 50: 79, 1944. —*C.R.*

34—Query: **Burning Lips.** *J.A.M.A.* **139 (8):**553. February 19, 1949.

Woman aged 63 has burning sensation of lips; also areas of petechial hemorrhages with a suggestion of bullae. She is highly nervous. Blood examination is negative. Rutin with ascorbutic acid gave some relief but lip findings have not changed. Allergy diets, antihistamic drugs and high vitamin B dosages have failed to correct "fixation" of burning lips.

Such cases present a difficult problem. Condition is most usual in women about the time of menopause. This case is suspicious of a psychosis and help along this line is advisable. Consultation with a dermatologist is also desirable to rule out specific skin conditions such as lichen planus. Alvarez thinks such symptoms sometimes follow a slight stroke. —*C.R.*

35—Query: **Ulceration of mouth.** *J.A.M.A.* **137(7):**666. June 12, 1948.

Suggestions are requested for diagnosis and treatment of following case. Woman aged 35, has had recurrent canker sores on lips and in mouth for two years which last from 7 to 10 days, recurring in from two weeks to two months. Attacks are preceded by swollen lymph nodes and a feeling of exhaustion and drowsiness. She has had mild hay fever; and for six years has had prolonged attacks of fever which have been treated with sulfonamides. She is slightly anemic. Undulant fever has been suspected, skin tests with Brucella antigen having been positive.

Answer: Other infections should be considered in the etiology. Malaria, rheumatic fever, pyogenic infections and endocarditis are possibilities. Food allergies are rare. Brucellosis alone could be cause; the possible allergenic effect of the sulfonamides should be ruled out. Treatment is difficult and if Brucellosis is the offender, antibiotics are of little value except for occasional temporary relief from the sulfonamides. General supportive measures are necessary; and vaccines and extracts from the Brucella organisms are suggested. This patient needs further study for correct diagnosis and proper therapy. —*C.R.*

36—Andrae, R., and Fitzpatrick, W. H.: **Nutrition in Vienna.** *Bull. USA Medical Department.* **9:**399.

Nutritional surveys were conducted on the civil population of Vienna in the first three months of 1946.

Adults. Reports in the latter part of 1945 showed that in September weight loss was widespread and affected all age groups of the population. The degree of weight loss was of a serious nature. In September, a nutrition survey reported definite edema not attributable to organic disease. Specific nutritional diseases, however, were not common. Between September 1 and December 31, an appreciable improvement in the weight of the Viennese occurred. A significant increase in the average weights is clearly shown.

Children. Information regarding the children 0 to 6 years of age was gathered by inspecting and examining the children attending the mother feeding stations or attending the Central Children's Home. In the absence of clinical and laboratory studies only an opinion can be rendered, and this is based on the physical examination of the children. In general, this group appeared satisfactory. Insofar as vitamin D was available through Austrian medical channels,

rickets was preventable. Height and weight data of children between 6 and 11 years of age were collected and analyzed by means of the Wetzel Chart.* From this chart the body type and physiologic age were determined. Analyses of the data for January, February, and March, 1946 showed that, in physiologic age, the children appeared to be normal. In body type, however, there was a decided shifting toward the "poor" type in this period. In addition, there was a high incidence of weight deficiency among children in this group. Because of the shifting to the "poor" body type, and also because of the large number of children who were more than 15 per cent underweight, the nutritional status of the population under 20 years of age was considered far from satisfactory. A general estimate of the nutritional status of children between 11 and 18 years of age was only "fair". This was based on the high incidence of weight deficiencies and also the large number of "poor" body types as determined by the Wetzel chart. In addition, there was a reduced vitamin A intake in 66 per cent. Specific deficiency diseases, with the exception of evidence of reduced vitamin A intake, were not prevalent. These conclusions were based on a study of 1,000 school children.

Pregnant and Lactating Women, by virtue of both the official ration and the food subsidies given by welfare agencies, were in a relatively favorable position. Women 20 to 39 years of age were in a favorable position as regards their average weight. It was not surprising, therefore, to find that during pregnancy a normal increase in weight was observed, and also that the maternal health during pregnancy was good. There were but few cases of weight deficiencies in this group. Although this series of 300 pregnant and lactating women failed to show malnutrition as a group, 24 per cent of the former and 39 per cent of the latter lost one or more teeth during their pregnancy or lactation. Examination of these women indicated no nutritional edema or abnormal incidence of vitamin deficiency.

Hospitalized Patients. Periodic visits to the surgical and obstetric-gynecologic services of the Allgemeines Krankenhaus failed to reveal any incidence of malnutrition of a specific deficiency type. Because of the subsidies previously mentioned, hospital rations were considered generally adequate.

Forty cases of *alleged starvation* edema were examined. These were, in general elderly patients who were suffering from some organic disease in which the ration could not be tolerated. There were only ten patients in whom even slight edema was present. Serum protein and hemoglobin levels were normal in all patients. The diagnosis of starvation edema had been made by a civilian doctor in order to secure increased rations or a greater variety of rations for the patients. The need for a sick ration was great since no allowance was made for this group.

Most of these patients probably required additional or special rations unobtainable except by a physician's diagnosis of starvation edema. True starvation edema was not observed.

*Wetzel, N. C.: Physical Fitness in Terms of Physique Development and Basal Metabolism With a Guide to Individual Progress From Infancy to Maturity: A New Method for Evaluation. *J.A.M.A.* 116:1187,1195, March, 1941.

—*H.M.G.*

37—Dummett, C. O.: **Abnormal Color Changes in the Gingivae.** *Oral Surg., Oral Med., Oral Path.* **2**:649. May, 1949.

Pigmentation of the oral tissues is observed in a large number of individuals who evidence no oral pathosis upon careful examination. This physiologic oral pigmentation is, furthermore, not limited to any one particular racial group, although it does appear to be a common characteristic of the darker races. Varying quantities of melanin pigment cells or melanoblasts in the basal layers of the stratum corneum of the epidermis are responsible for the degree of pigment.

Pigmentation may also occur in the oral tissues as a result of disease. It is necessary to differentiate between normal and abnormal pigmentations since oral color changes may be employed as a basic aid in the diagnosis of various dental, systemic, and occupational diseases. Abnormal color changes with which the oral tissues in general and the gingival tissues in particular may be affected can be conveniently classified into those of local and systemic origin.

Color changes in the gingival tissues may result from the inflammatory effects of irritants. These effects are the complex vascular, lymphatic, and local tissue reactions caused by irritations of different sorts. In

these cases, it is to be expected that the color changes would be localized and would occur mainly in the regions of actual irritation. Some of the factors that frequently produce irritation are as follows:

1. Deposits on the gingiva-covered part of the teeth
2. Food impactions and food stains
3. Mechanical irritants
4. Atmospheric irritants
5. Chemical irritants
6. Infectious irritants and Periodontal Degenerations
7. Traumatic irritants
8. Irradiation by roentgen rays and radium

The mechanism by which pigmentation of the gingivae arises from systemic disturbances is much more complex than that from local irritations. In these cases color changes are not localized and may occur in any portion of the gingivae. Some of the systemic conditions that may be responsible for oral color changes are as follows:

1. Endocrine diseases
   a. Addison's disease
   b. Diabetes
2. Pigmentations as a result of metallic poisoning
   a. Bismuth
   b. Mercury and lead
   c. Chromium poisoning
3. Dietary deficiencies
   a. Deficiency in ascorbic acid
   b. Adult rickets or vitamin D
   c. Deficiency in niacin or nicotinic acid
4. Blood Dyscrasias
   a. Chlorosis and secondary anemia
   b. Myelogenous leukemia
   c. Addisonian anemia
   d. polycythemia
   e. purpura hemorrhagica
5. Pregnancy
6. Drug allergy and idiosyncrasies
   a. Phenolphthalein
   b. Dilantin sodium
   c. Quinacrine hydrochloride
   d. Iodides and bromides
   e. Arsenic
   f. Enterogenous cyanosis
7. Miscellaneous conditions

This article has a great deal of information on this subject and should be read by the dentist who is interested in mouth lesions, and particularly those who treat periodontal diseases. —*H.M.G.*

38—English, J. A.: **Experimental effects of thiouracil and selenium on the teeth and jaws of dogs.** *J. D. Res.* **28**:172, April, 1949.

This is a report of certain changes observed in the dentition and jaws of a litter of dogs treated with goitrogenic compounds: thiouracil and selenium. The important lesions described are:

1. Hypoplasia of the enamel in a thiouracil-treated dog.
2. Structural defects of the dentin in a dog treated with a large dosage of selenium.
3. Structural changes in the supporting bone of the mandible in both a thiouracil-treated dog and a dog receiving a large dose of selenium.
4. Marked variation in the size and shape of the mandibular condyles of all treated dogs, with histological indications of an untimely continuation of bone formation in the condyles of the selenium-treated dogs.

There are tabulations of the schedule of treatment given prior to the initiation of this study, and of the measurements taken of the teeth and jaws at the termination of the experiment. Photographic and photomicrographic illustrations are shown of gross lesions and of characteristic histologic sections of the teeth, jaws, and condyles. A roentgenographic study of the four specimens is included.

A brief review of the pharmacology, therapeutics, and toxicology of thiouracil and selenium is given. Also a brief review is presented of current literature dealing with the endocrine and metabolic changes occurring in experimental or therapeutic administration of these compounds.

Finally, correlations are made between the findings in this experiment and the various data reported from the literature. It is shown that the gross lesions noted in these dogs are not unlike those found experimentally in thyroidectomy or in the human cretin. Histologically the sections of the dogs' teeth show lesions that are similar to those found in various nutritional disorders, or in diseases in which the underlying mechanism causing structural change have a metabolic or nutritional basis. Sections of the mandibular bone and of the condyles of these dogs have structural modifications which

correspond with changes found in thyroidectomy, and hypophysectomy, or in the gonadal atrophy which may result from either of the former endocrine dysfunctions.

Comments are made pertaining to limitations in the significance of the results of this experiment and their interpretations. It is emphasized that this study is based on experimental findings in a single litter of four mongrel dogs. The results, therefore, must have their greatest value in stimulating and orientating future investigations along similar lines. —*H.M.G.*

39—O'Rourke, J. T.: **Significance of tests for biting strength.** *J.A.D.A.*, **38**:627, May, 1949.

Under normal conditions the biting force used in mastication is limited not by muscular power but by pain or by fear of pain or injury. The muscles of mastication have more power than is ever required in mastication, because they are maintained by postural function and speech. When masticatory force is applied gradually, three types of sensation are experienced—tactile sense, deep pressure sense, and pain. In tests of biting force subjects usually stop at some point in the range of deep pressure at which they become alarmed by anticipation of injury or pain. In ordinary mastication even lower forces probably are used. Masticatory effort is carried on at a level at which there is freedom from anxiety.

Many foods that are essential for adequate nutrition will present difficulties in mastication for a person with low tolerance to biting stress. He will attempt to make adaptations to this deficiency, but unfortunately the commonest compensations are apt to be detrimental. They include swallowing of larger or coarser food masses and choice of softer foods. Such changes may lead to malnutrition, especially among elderly persons. —*H.M.G.*

40—Schluger, S.: **Osseous resection—A Basic Principle In Periodontal Surgery.** *Oral Surg., Oral Med., and Oral Path.* **2**:324, March, 1949.

The pattern of behavior of the soft tissue is conditioned by the hard tissues with which it is in contact. That is not to say that bone is such a rigid tissue that it will never round out its jagged edges or thin out its blunt margins. That is not the case. These changes are so slow, however, that the soft tissue overlying such bone will degenerate and become pathologic long before the changes can take place. It is for this reason that we must treat the problem clinically as if the bony form were permanent or nearly so. Heretofore, we have contented ourselves with soft tissue surgery with minor or inconsequential attention to the bone limited to the reduction of spicules. Many of us have watched the steady regrowth of tissue in some cases so that the depth of the gingival sulcus grew deeper than we would have had it. Too many compromises have been made with the end result. It is granted that much of this tissue looked and behaved as healthy tissue looks and behaves, but the same result may be achieved by skillful curettage without resort to surgery. The only reason for surgical management of a given case is the certainty of the elimination of the pocket.

This does not mean that all periodontal surgery must include bone resection and reshaping as well. In fact, this is usually not the case. What is meant is that a considerable minority of cases require more than a simple gingivectomy—it requires a careful attention to the architecture of the supporting bone and the careful reshaping of that bone to conform with the rigid behavior of soft tissue. It is exactly the opposite conception from that now held in the field. We now accept the existing bone profile, hoping that the resected gingivae will conform, but experience has proved that they do not conform unless the bony profile is altered in the manner described in this report.

Certain precautions must be taken before deciding to employ this method. If too much vital bony support must be sacrificed on sound teeth in order to retain a neighboring affected tooth, it may be better to sacrifice the involved tooth. Or, if bifurcation exposure is possible because of an extensive sacrifice of bone, it may be a better and sounder risk to accept a deep gingival crevice. All deep pockets are not surgical material per se.

Schluger illustrates the indications, techniques, and principles implied in attaining the desired result. If it is determined that the destruction involved militates against using radical surgical techniques, the com-

promise in case management can be made before any useless half-hearted soft tissue surgery is attempted rather than after it has failed. —*H.M.G.*

41—Smith, J. B.: **Surgical Management of Cancer of the Mouth.** *J. of O. Surg.*, 7:95, April, 1949.

Cancer of the alveolar ridge is of special interest to the dentist since patients with this neoplasm quite naturally believe that the disease is related to the teeth and seek dental consultation first. Martin* has pointed out that 59 per cent of a group of 100 patients with cancer of the gingiva, first sought the advice of a dentist. This subgroup of 59 patients was studied further, and it was found that the dentist recognized the lesion as cancer in only 18 of the 59 patients, or 31 per cent of the group. The average delay between the first consultation with the dentist and consultation with a physician when cancer was suspected by the dentist was four weeks. In the 41 patients, or 69 per cent of the group in which the dentist failed to recognize the possibility of cancer, the average delay before the patient finally saw a physician was five months. This delay unquestionably lessened the chances of survival of this group.

This history of cancer of the gingiva is a dismal one. Martin reports a 5-year survival rate of only 26 per cent of all patients treated. Only cancer of the tonsil, of all intraoral cancer, has a poorer prognosis. This fact may be due in large part to the failure of the dental profession to recognize early cancer.

While observing the relation of certain actinomyces-like organisms to the development of subgingival calculus, necrotic areas were noted in the epithelium immediately adjacent to similar organisms which were outside of the calculus. A common positional relationship of the larger fungus-like organisms to the necrotic areas suggested that some agent, possibly an enzyme, elaborated by the organisms caused the necrosis.

The lesions of necrotic periodontitis are characterized by areas exhibiting death of cells and disorganization of intercellular material. They may include all of the component tissues of the periodontium. The area of involvement is greatest in the epithelium on the sulcus or pocket wall, and it often tapers in a funnel-like pattern as it extends into the corium of the gingiva and through the periodontal membrane to the alveolus. The shape of the lesions certainly suggests the influence of an extrinsic agent. The cells affected undergo a transitional influence with disorganization of nuclei and loss of typical staining properties. Collagenous fibers lose their morphologic characteristics.

When a necrotic tract lies close to the cementum or alveolus, it will be observed that the cementoblasts or osteoblasts of the area are missing or exhibit degenerative changes. Disorganization and destruction of the cementum cuticle are also observed. All of the tissues affected by the necrotizing process, including the alveolar bone but excluding the cuticle, tend to be converted into a relatively homogeneous coagulum-like mass that stains pink with eosin. In later stages of the process vacuization within the necrotic mass leads to dissolution. Areas of healing are seen which suggest that the process is one of attack and remission.

A striking feature of the necrosis in these cases is the absence of an accompanying agranulocytic infiltration of the surrounding tissues. Since inflammatory reaction is a natural defensive process, lack of reaction is considered favorable to rapid extension of disease.

Williams suggests a working hypothesis as follows: when some predisposing agent, systemic and/or local, has established conditions favorable to inflammation and/or infection in the gingivae, a necrotizing substance, probably an enzyme, is elaborated in the gingival sulcus or periodontal pocket or in the pocket wall (necrosin). This necrotizing agent may extend either by diffusion, in the epithelium and immediately adjoining tissues, or be conveyed by the lymphatic channels to distant parts of the periodontium. The areas of necrosis and dissolution of periodontal tissues favor the establishment of the "vertical" type of lesions commonly associated with periodontitis complex or periodontosis. The striking lack of the agranulocytic phase of inflammatory reaction about the necrotic areas shown by Box, Becks *et al.*, and Wainwright and Nelson suggests that either an abnormal systemic condition causes good inflammatory reaction to be impossible or some factor

elaborated in the pocket or in the pocket wall has ability to prevent or quell inflammation. The areas of necrosis reported by Ray and Orban which were accompanied by, or were the result of, inflammatory reaction may be part of the process in the destruction of tissues in periodontitis simplex.

A case was reported of a white man of 74 years who complained of a sore mouth of four months' duration. It began with a sore spot in the upper right molar region under his complete upper denture which he had worn five years. Two months after the onset of symptoms he consulted his dentist who took a smear of the lesion. The laboratory reported a moderate number of Fusiformis dentium and Borrelia vincenti. It was decided to try local therapy for Vincent's infection. Gentian violet was applied daily and the patient gave up smoking for two months, but the lesion persisted and increased in size.

Examination revealed an ulcerative lesion approximately 1.5 cm. in diameter on the buccal surface of the alveolar process in the upper right molar region. The base of the ulcer was depressed and the margin was slightly elevated and rolled. The buccal tissue adjacent to the ulcer was indurated and adherent to the alveolar process. A white film covered the buccal mucosa and the palate.

A biopsy specimen was taken and the patient was given a thorough physical examination which disclosed that the patient was in excellent condition for a man of 74 years. The histologic diagnosis of the biopsy specimen was squamous cell carcinoma (grade III according to Broders' classification).

Since this patient's general condition was excellent and the tumor was of relatively short duration and small size, an operation was planned to eradicate the tumor. Using the electrocautery cutting curette the tissue to be removed, which included a 1 cm. margin of normal tissues surrounding the tumor, was outlined. This electrocautery incision was carried through the periosteum of the maxilla and extended out into the cheek as far as the orifice of the parotid duct. This tissue was then elevated from the bone and removed from the mouth. The alveolar process and floor of the maxillary sinus were then removed with rongeurs. The entire wound was heavily cauterized with the electrocautery to destroy another centimeter of normal soft tissue and bone. A 2 per cent gentian violet solution was applied to the wound. Subsequently the patient experienced considerable difficulty with speech due to the large opening into the maxillary sinus. Fluids also passed from his mouth to his nose adding to his apprehension. Therefore, he was given a prescription for phenobarbital, ¼ grain to be taken four times a day. He was seen every two weeks and on one visit a large sequestrum was removed from the maxilla without anesthesia. The wound healed quickly and a new denture was made which closed the oral fistula of the maxillary sinus and restored nearly normal speech and function. When last seen there was no evidence of local recurrence of the tumor or metastatic lesions in the cervical region.

*Martin, Hayes, Mouth Cancer and the Dentist. *J.A.D.A.* 33:845, July, 1946. —*H.M.G.*

42—Williams, C. H. M.: **Clinical applications of animal experimentations.** Studies on the causes of periodontal disease. *Oral Surg., Oral Med., Oral Path.* **2**:474, April, 1949.

The evidence arising from experimental efforts yields a number of clues to the etiology and essential nature of periodontal disease. It is interesting that deficiencies of a number of different dietary elements such as calcium, vitamin D, and vitamin C have all caused a similar osteoporosity of the bone of the jaws. Disturbances of general metabolism arising from artificially induced diabetes also caused osteoporosity. It is also significant that other bones and tissues of the body are involved in the same manner and to a similar degree as are the periodontal tissues. The marked specificity of the effects of acute niacin deficiency and acute pantothenic acid deficiency shows a surprising difference of effects of two of the factors of the vitamin B complex. Animal experiments with vitamin C deficiency has confirmed a common clinical observation that gingivitis is a late manifestation of hypovitaminosis C.

In designing future experiments it is desirable that provision be made to observe the variations in reaction that may occur at different times. It is also desirable that experiments be designed to show the influence of partial deficiencies or of moderate disturbance of metabolism that would be more closely comparable to those ordinarily existing among human beings.

Our knowledge concerning the etiology of periodontal disease is still incomplete in some respects, but the animal experimentation method offers an almost inexhaustible source of additional knowledge. —*H.M.G.*

43—Williams, Charles H. M.: **The necrotic process in periodontal disease.** *Oral Surg., Oral Med., and Oral Path.* **2:** 592, May, 1949.

Many writers have attributed destruction of the periodontal tissues mainly to bacterial action, while others have considered the role of microörganisms as definitely secondary or relatively unimportant etiological factors. Bunting in 1936 stated that in health the mucous membrane presents an efficient and continuous barrier against bacteria. When, through abnormal systemic or local causes, conditions become favorable to the establishment of infection in the gingivae, he reported that two groups of clinical manifestations were usually found to be associated with two recognizably different groups of bacterial forms. One group of bacteria usually caused a marked inflammatory defensive reaction and were controlled by it. In the second group he found a nonpurulent, nonhemolytic type of bacteria with Streptococcus viridans most common. Associated with this second group of bacteria he observed lack of active tissue reaction and a progressive degeneration against which the tissues had little power of self-protection. He reported that these latter infections tended to infiltrate deeply into the tissues which they attacked. Bunting's observations, founded on the relation of evidence in bacterial smears to clinical manifestations of periodontal disease, is an interesting phase of development toward the hypothesis suggested by Box in 1944 and developed in further reports in 1945, 1947, and 1948. —*H.M.G.*

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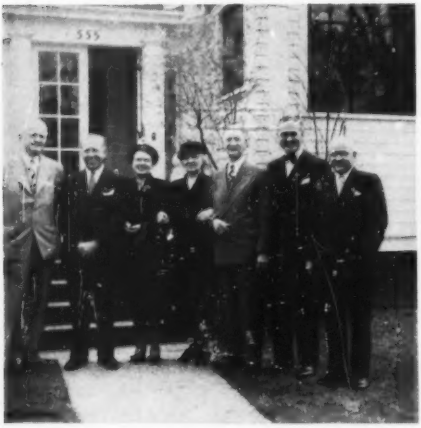

Several officers and members of American Academy of Periodontology at entrance to 555 West Maple Ave., Birmingham, Michigan, May 1, 1949

JOURNAL OFFICE FOR 20 YEARS

Photograph of Editor and Journal Secretary taken in 1945

Retiring Editor Spalding at her desk May 1st, 1949

BOOK REVIEWS

How to Become a Doctor. A Complete Guide to the study of Medicine, Dentistry, etc., Pharmacy, Veterinary Medicine, Occupational Therapy, Chiropody and Foot Surgery, Optometry, Hospital Administration, Medical Illustration, and the Sciences. By George R. Moon, A.B., M.A. The Blakiston Co., Philadelphia-Toronto. 1949. 131 pp.

This small volume contains a wealth of concrete information as well as much sound practical advice for prospective students of medicine and allied professions. Mr. Moon is uniquely qualified for the task because for twenty years he has been connected with medical, dental, and pharmaceutical education as a registrar, and as a member of admissions committees and national groups of this kind.

The book is addressed in large part to the medical aspirant but, as the author states, most of the information applies equally to dentistry, although there are less college credits required of dental entrants.

The student is advised that a thorough and well-rounded basic education is especially necessary to him since he is going to be expected to assume an important place in his community as well as in his profession, and after commencing his professional education he will be pretty thoroughly swamped with medical, or dental, studies and few if any of these schools include courses in the humanistic or social fields.

The applicant for admission faces keen competition and should look well to every phase of his qualifications. Last year there were 30,000 applications for admission to medical school and openings for only 7,000. In dental schools I am told that the figures are quite comparable to these.

"The committee on admissions has one primary function: to select those students who will succeed best in the study of medicine (or dentistry) and who, having graduated from medical school will succeed best in the practice of medicine." He will "have superior college grades, a broad balanced liberal arts program, be not over 22 years of age, have high moral standards and professional ideals, be reasonably attractive personally, be poised and at ease in his interviews, speak clearly and correctly, be clean and fastidious as to dress and appearance, and have enough financial backing so that he will not be forced to work or be worried by money matters, and last but not least be physically strong and healthy."

One cannot but wonder what effect socialized medicine might have on medical and dental educational standards, but Mr. Moon makes no mention of such an eventuality.

Throughout the book the reader is given the impression that it is a great privilege to be admitted to these professions and that anyone embarking on them assumes a debt to society which is to be repaid in earnest application to his studies and later in services to humanity.

Applicants for admission are so carefully screened that less than 10 per cent, a slightly larger proportion of women than of men, fail to complete the course. The unfortunate student dismissed for failure in any medical school will find it difficult if not impossible to get a second chance.

Mr. Moon makes the wise suggestion that the prospective student seek the aid of some vocational counselling service before deciding positively on his career. Since a goodly amount of manual skill is necessary in the practice of dentistry the candidate for this branch will of course be advised with due regard to his talents and activities of this kind, and his interest in doing things with his hands. A student of highly scientific type of mind is sometimes disappointed or disillusioned to find that practical clinical medicine is far different from the exact science he had envisioned and from those with which he has been familiar. Better understanding beforehand of what medical practice really means would have sent this student to the laboratory or into the teaching profession.

Because many applicants are of necessity going to be denied entrance to schools of medicine and dentistry, it is well to have under consideration some one of the allied professions.

A separate brief chapter is devoted to pharmacy as well as one to dentistry; and the other professions mentioned on the title pages are adequately considered. A complete list is presented of all the accredited schools with approximate costs of tuition.

—Celia Rich

The 1948 Year Book of Dentistry, edited by Lester Cahn, D.D.S.; Donald A. Keys, D.D.S., A.B.; Carl W. Waldron, M.D., D.D.S.; Stanley D. Tylman, D.D.S., M.S.; and George R. Moore, D.D.S., M.S. Chicago: Year Book Publishers, 1948, 656 pages.

The Year Book publishers have been issuing "Practical Medicine" year books for some fifty years, and "Dentistry", the most recent of these, has been published annually since 1936.

The editors have attempted to give chief consideration in the selection of material and preparation of the abstracts, to quote from the introduction to the first edition to "(1) their technical scientific value; (2) their usefulness to the average reader; (3) their likelihood to be new to him; (4) their source (journal in which they were published, meeting at which they were read or institution in which the work reported was done), and (5) their author." The continuous successful publication of *The Year Book of Dentistry* is evidence that they have done a pretty consistently good job.

The book is divided into the following departments: (1) Oral Pathology and Oral Medicine, with Lester Cahn as editor. (Dr. Cahn also contributes a special article excellent though necessarily brief, on "Oral Manifestations of Systemic Disease".) (2) Operative Dentistry, edited by Donald A. Keys; (3) Oral Surgery, Carl W. Waldron, editor; (4) Prosthetic Dentistry, with Stanley D. Tylman, and (5) Orthodontics, with George R. Moore as editors. In each the editor is solely responsible for the preparation of his section, and many of the abstracts are accompanied by interesting editorial comments and criticisms.

Each of the above is further sub-divided: for example, under "Oral Pathology and Oral Medicine," there are chapters on Disease of the oral mucosa, Periodontia, Tumors, Bone lesions, Neurology, Caries, and Miscellaneous.

The following authors are represented in the section on Periodontia: Edgar Coolidge, Harold K. Box, Balint Orban, Harold G. Ray, Harold J. Leonard, Theodor Rosebury, Harry Lyons, Daniel Ziskin and Isador Hirschfeld; and while the number of contributors is small it is unquestionably choice.

There is equally adequate coverage of the year's dental and medical literature in the other branches.

The volume contains numerous illustrations. It is well indexed and will prove a convenient and valuable addition to any dental library.

—Celia Rich

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